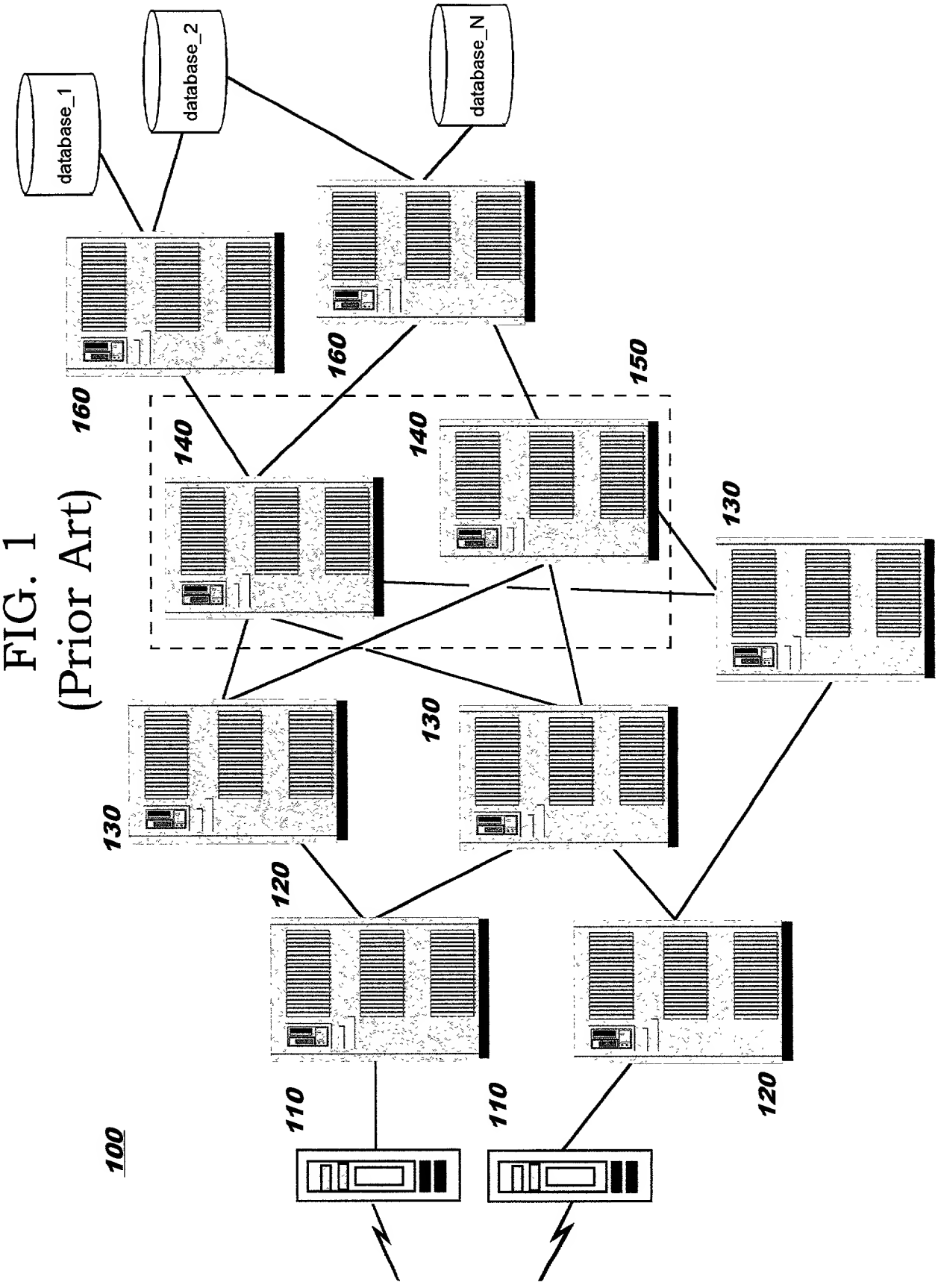
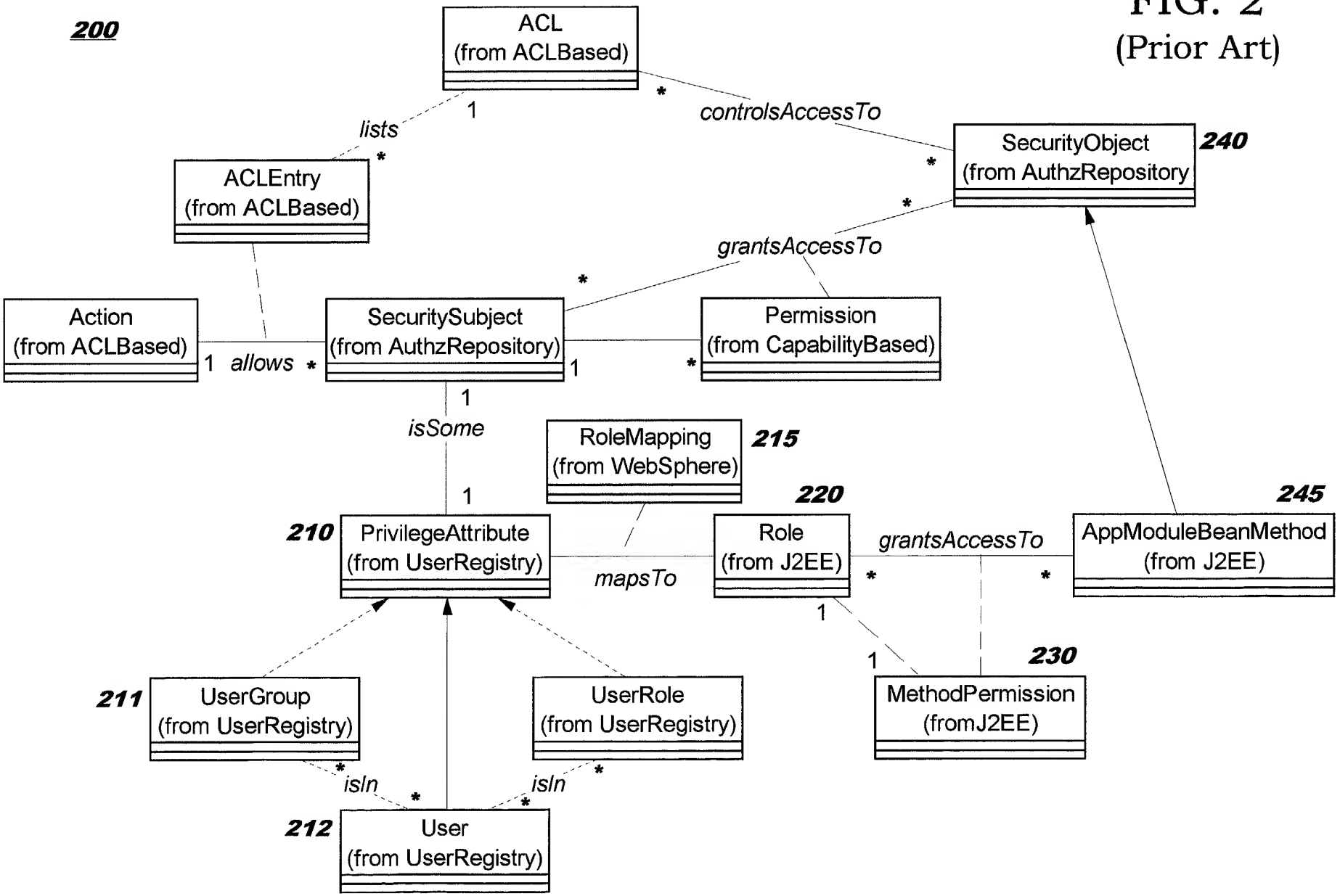



FIG. 1
(Prior Art)

FIG. 2
(Prior Art)



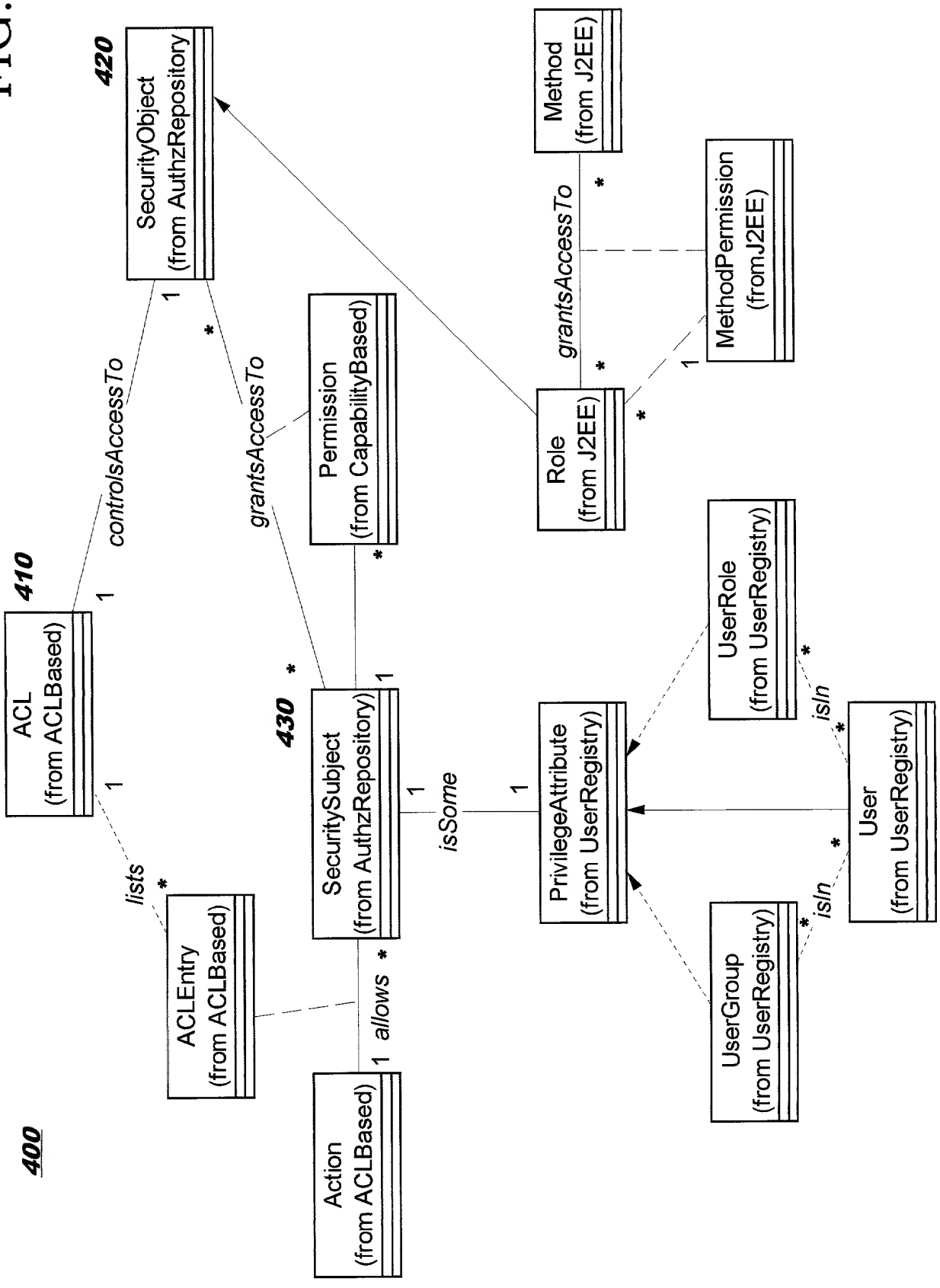
FOGE80 BTSEA660

FIG. 3
(Prior Art)

Security Table

| Subjects | Granted Methods: Account getBalance | Account deposit | Account closeAccount | AcctServlet HTTP_GET |
|---|---|---|---|---|
| Teller | yes | yes | | |
| Cashier | yes | | | |
| Super | | | yes | |
| WebTeller | | | | yes |

FIG. 4


400
410
420
430
ACL
(from ACLBased)
ACLEntry
(from ACLBased)
Action
(from ACLBased)
SecurityObject
(from AuthzRepository)
SecuritySubject
(from AuthzRepository)
Permission
(from CapabilityBased)
Role
(from J2EE)
Method
(from J2EE)
MethodPermission
(fromJ2EE)
PrivilegeAttribute
(from UserRegistry)
UserRole
(from UserRegistry)
UserGroup
(from UserRegistry)
User
(from UserRegistry)
controlsAccessTo
grantsAccessTo
grantsAccessTo
lists
allows
isSome
isIn
isIn
1
*

PO0E80 8T9Et6d0

FIG. 5

500

## Required Roles Table

| Roles | Granted Methods: Account getBalance | Account deposit | Account closeAccount | AcctServlet HTTP_GET | /finance/account .GET | /public/* |
|---|---|---|---|---|---|---|
| Teller | yes | yes | | | yes | |
| Cashier | yes | | | | | |
| Super | | | yes | | yes | |
| WebTeller | | | | yes | | |
| PublicRole | | | | | | yes |

FIG. 6

600

# Protection Matrix

| Subjects | Objects (Roles) | | | | |
|---|---|---|---|---|---|
| | Teller | Cashier | Super | WebTeller | PublicRole |
| TellerGroup | I | | | I | |
| CashierGroup | | I | | | |
| Supervisor | | | I | | |
| Bob | I | I | I | I | |
| *Everyone* | | | | | I |